PATENT APPLICATION

ATTORNEY DOCKET NO. 10970975-1

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Barber, et al.

Application No.: 09/517,366

Filing Date: 03/02/2000

Title: SYSTEM AND METHOD FOR ESTABLISHING A SECURE EXECUTION ENVIRONMENT FOR A SOFTWARE PROCESS

Confirmation No.: 4565

Examiner: Opie, George L.

Group Art Unit: 2126

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TRANSMITTAL OF APPEAL BRIEF

Sir:

Transmitted herewith in **triplicate** is the Appeal Brief in this application with respect to the Notice of Appeal filed on __04/16/2004__ .

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) $330.00.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

( ) (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d) for the total number of months checked below:

( ) one month $110.00
( ) two months $420.00
( ) three months $950.00
( ) four months $1480.00

( ) The extension fee has already been filled in this application.

(X) (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account **08-2025** the sum of ___$330.00___ . At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. A duplicate copy of this sheet is enclosed.

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Respectfully submitted,

Barber, et al.

By _____

Robert A. Blaha

Attorney/Agent for Applicant(s)

Reg. No. **43,502**

Date: **04/26/2004**

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of: Jeffery S. Barber *et al.*)		Confirmation No.: 4565
)		
Serial No.: 09/517,366)		Group Art Unit: 2126
)		
Filed: March 2, 2000)		Examiner: Opie, George L.
)		
For: **SYSTEM AND METHOD FOR**)		HP Docket No.: 10970975-1
ESTABLISHING A SECURE)		
EXECUTION ENVIRONMENT)		
FOR A SOFTWARE PROCESS)		

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APPEAL BRIEF UNDER 37 C.F.R. §1.192

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Alexandria, VA 22313-1450

Sir:

This is an appeal from the decision of Examiner George L. Opie,

Group Art Unit 2126, of January 16, 2004 (Paper No. 6), rejecting all

claims 1-40 in the above-referenced application and making the rejection

FINAL.

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Gloria L. Knox

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AUTHORIZATION TO DEBIT DEPOSIT ACCOUNT

It is not believed that extensions of time are required, beyond those, which may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. §1.136(a), and any fees required therefor are hereby authorized to be charged to Hewlett-Packard Company's Deposit Account No 08-2025.

I. **REAL PARTY-IN-INTEREST**

The real party-in-interest is the assignee, Hewlett-Packard Development

Corporation. An assignment to Hewlett-Packard Company was recorded April 10, 2000

on reel/frame number: 010757/0956. An assignment from the Hewlett-Packard

Company to the Hewlett-Packard Development Corporation was recorded

September 30, 2003 on reel/frame number: 014061/0492.

II. **RELATED APPEALS AND INTERFERENCES**

There are no known related appeals or interferences.

III. **STATUS OF CLAIMS**

Claims 1-40 stand finally rejected. No claims have been allowed. The final

rejection of claims 1-40 is appealed. For the reasons set forth below, Appellants

respectfully request that the rejections be overturned.

IV. **STATUS OF AMENDMENTS**

No amendments have been submitted after the FINAL Office Action, and all

amendments submitted prior to that have been entered. The claims in the attached

Appendix reflect the present state of pending claims 1-40.

The final rejection of claims 1-40 is appealed.

V. **SUMMARY OF THE INVENTION**

Appellants' independent claims 1, 11, and 21 identify a system, method, and

computer-readable medium, respectively for establishing a secure execution

environment for a software process. A system (100) establishes a secure execution

environment for a software process (108) executed by a program (111) operating on a computer (101). The system (100) comprises a software process (108), an operating system kernel (127), and a system call trap (300). The software process (108) operates on a computer (101) and includes a plurality of attributes (114). The operating system kernel (127) is in communication with the software process (108) and an executable file (136) accessed by the software process (108). The system call trap (300) assigns a selected plurality (225) of the attributes to the software process (108). The selected plurality of attributes (225) are stored in association with said executable file (136).

A method for establishing a secure execution environment for a software process (108) executed by a program (111) operating on a computer (101) comprises operating a software process (108) including a plurality of attributes (114), executing an operating system kernel (127) in communication with said software process (108), and assigning a selected plurality (225) of said attributes to the software process (108). The operating system kernel (127) communicates with an executable file (136) to be accessed by software process (108). The selected plurality of attributes (225) are stored in association with the executable file (136).

A computer readable medium having a program for establishing a secure execution environment for a software process (108) executed by a program (111) operating on a computer (101). The program (111) includes logic configured to operate a software process (108) on the computer (101). The software process (108) includes a plurality of attributes (114). The program (111) also includes logic configured to execute an operating system kernel (127) in communication with said software process (108). The operating system kernel (127) is also in communication with an executable file (136) to be accessed by said software process (108). The program (111) further includes logic configured to modify the plurality of attributes (114) for the

software process (108) based on an executable environment attribute (225) stored in association with the executable file (136).

VI. ISSUES

The issues on appeal are as follows:

A. Whether rejected claims 1-30 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent Number 6,289,462 to McNabb *et al.* in view of U.S. Patent 5,784,463 to Chen *et al.*?

B. Whether rejected claims 31-40 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent Number 6,289,462 to McNabb *et al.* and U.S. Patent 5,784,463 to Chen *et al.* in view of U.S. Patent 5,560,008 to Johnson *et al.*?

VII. GROUPING OF CLAIMS

Appellants have grouped the pending claims 1-40 into the following three (3) distinct claim groups:

Group A: Claims 1-10, and 31-33;

Group B: Claims 11-20, and 34-37;

Group C: Claims 21-30, and 38-40

As explained below, each of the claims within the separate claim groups covers a distinct scope of the Appellants' systems and methods.

A. Claims 1-10, and 31-33 stand or fall as a group (Group A) with respect to the rejection of claims 1-30 over U.S. Patent Number 6,289,462 to McNabb *et al.* (the '462 patent) in view of U.S. Patent 5,784,463 to Chen *et al.* (the '463 patent) and with respect to the rejection of claims 31-40 over the '462 and '463 patents in further

view of U.S. Patent Number 5,560,008 to Johnson *et al.* (the '008 patent) for at least the reason that the proposed combinations fail to disclose, teach, or suggest each element recited in independent system claim 1. Specifically, the cited art references fail to disclose, teach, or suggest a system for establishing a secure execution environment for a software process executed by a program operating on a computer that includes "a system call trap associated with said operating system kernel . . . configured to modify the plurality of attributes for the software process based on an executable environment attribute stored in association with said executable file." This element is distinct from the elements of the remaining claim groups. Therefore, claims 1-10, and 31-33 stand or fall independent of the claims of the other claim groups.

    B.   Claims 11-20, and 34-37 stand or fall as a group (Group B) with respect to the rejection of claims 1-30 over the '462 and '463 patents and with respect to the rejection of claims 31-40 over the '462 and '463 patents in further view of the '008 patent for at least the reason that the proposed combinations fail to disclose, teach, or suggest each element recited in independent method claim 11. Specifically, the cited art references fail to disclose, teach, or suggest a method for establishing a secure execution environment for a software process executed by a program operating on a computer that includes "modifying the plurality of attributes for the software process based on an executable environment attribute stored in association with the executable file." This element is distinct from the elements of the remaining claim groups. Therefore, claims 11-20, and 34-37 stand or fall independent of the claims of the other claim groups.

    C.   Claims 21-30, and 38-40 stand or fall as a group (Group C) with respect to the rejection claims 1-30 over the '462 and '463 patents and with respect to the

rejection of claims 31-40 over the '462 and '463 patents in further view of the '008 patent for at least the reason that the proposed combinations fail to disclose, teach, or suggest each element recited in independent computer-readable medium claim 21. Specifically, the cited art references fail to disclose, teach, or suggest a computer-readable medium having a program configured to establishing a secure execution environment for a software process executed by a program operating on a computer that includes logic configured to modify "the plurality of attributes for the software process based on an executable environment attribute stored in association with the executable file." This element is distinct from the elements of the remaining claim groups. Therefore, claims 21-30 and 38-40 stand or fall independent of the claims of the other claim groups.

VIII. <u>THE ARGUMENT</u>

The Appellants respectfully request that the Board overturn the rejection of claims 1-40 for at least the reasons discussed below.

Appellants respectfully submit that the rejection of claims 1-40 under §103 should be withdrawn for any of the following reasons, each of which are separately discussed below:

(1)   the '463 patent cannot be used as a basis for this rejection because it is improper non-analogous prior art that cannot legally be relied on for a rejection under 35 U.S.C. §103;

(2)   the Office Action fails to establish a *prima facie* case of obviousness because, even assuming for the sake of

argument that the '463 patent can be relied on as a basis for a rejection under §103, the Examiner has not established the proper suggestion or motivation to combine the '462 patent and the '463 patent in the manner suggested; and

(3)   the Office Action fails to establish a *prima facie* case of obviousness because, even assuming for the sake of argument that the '463 patent is proper analogous art AND a proper suggestion or motivation to combine has been established, the combined teachings of the '462 patent and the '463 patent do not teach all of the claim limitations.

I.   The Rejection of Claims 1-40 is Legally Deficient Because the '463 Patent Cannot Be Used as a Basis for a Rejection Under 35 U.S.C. §103 Because the '463 Patent is Nonanalogous Prior Art

Appellants respectfully submit that the rejection of claims 1-40 is improper, and therefore should be withdrawn and the claims be allowed, because the '463 patent is improper "nonanalogous art" that may not legally be relied upon to support a *prima facie* case of obviousness. In order to rely on a reference, as a basis for supporting a rejection of an applicant's invention, the reference must be analogous art. In other words, the reference must be either in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned. MPEP §2141.01(a); *See, In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992); *In re Deminski*, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); *In re Clay*, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992); *Wang Laboratories Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993.).

The '462 patent relates to a trusted compartmentalized computer operating system (O/S) on a web server for controlling access to the execution of the software processes. The trusted O/S provides an added layer of security in two ways: by attaching additional security attributes to each of the O/S components (*e.g.*, files, processes, data packets); and by extending the security checks to use the new attributes. Col. 9, ll. 5-10. When a process makes a request to "call" or "execute" a program stored in a file, the O/S compares the attributes of the process to the attributes of the file where the program is stored, to see if the process will be allowed to run the program. The additional security attributes (*e.g.*, "sensitivity label") are used by the O/S to allow greater control over which programs are available. For example, the trusted O/S includes an "authorization database" that is used to see if the user running the process can access or execute the requested program. Col. 9, ll. 40-50. Therefore, the '462 patent is mainly related to the field of O/S functionality and the problems associated with securely controlling access to software processes to be executed via the O/S.

Unlike the '462 patent, the '463 patent is completely unrelated to the field of O/S functionality. Rather, the '463 patent relates to a process for authenticating users (*e.g.*, clients 10) that attempt to gain access to an application server 25 over a communications network 5. The authentication process of the '463 patent involves a very specific implementation of a public/private key cryptosystem. Col. 2, ll. 52-56. The authentication process of the '463 patent involves an authentication server 20 which is assigned a private key and a corresponding public key by a token issuer or by a certification authority/key management agency 35. Col. 4, ll. 32-34. "Tokens" are distributed to users (*i.e.*, clients 10) during a registration process. Each token has embedded therein a public key of the token issuer or certification authority. Without going into unnecessary detail, Appellants note that much of the disclosure of the '463

patent involves a detailed description of the verification/authentication schemes (illustrated in Figs. 3 & 4) between clients 10 and authentication server 25 using the tokens and the cryptography associated with the public/private keying.

Therefore, it is clear that the '463 patent is totally unrelated to O/S functionality for controlling access to the execution of software processes via an O/S. Furthermore, one of ordinary skill in the art of operating systems would not look for functional enhancements in the field of cryptography. In fact, Appellants respectfully submit that such solutions are not disclosed at all in the '463 patent. Therefore, Appellants respectfully assert that the '463 patent is improper "nonanalogous art" that may not be relied upon to support a rejection under §103. Accordingly, Appellants respectfully request that the rejection be withdrawn and claims 1-40 be allowed.

II. Prima Facie Case of Obviousness Not Established: No Suggestion or Motivation to Combine References as Suggested

The rejection of claims 1-40 under 35 U.S.C. §103(a) should be withdrawn because the Examiner has failed to establish a *prima facie* case of obviousness. In order to establish a *prima facie* case of obviousness by combining references, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill, to modify the primary reference (the '462 patent) in the manner allegedly taught by the secondary reference (the '463 patent). *See e.g.*, MPEP §§2142, 2143; *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir 1991); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). Even though Appellants believe the §103 rejection is improper because the '463 patent is unavailable "nonanalogous art," Appellants further submit that the Office Action fails to establish a proper motivation or

suggestion to modify the alleged teaching of the '462 patent with the alleged teaching of the '463 patent such as to render obvious claims 1-40.

The Office Action rejects independent claims 1, 11, and 21, as well as many other dependent claims, based on the same argument. Nonetheless, Appellants respectfully submit that the scope of these claims are not co-extensive. In the interests of brevity, however, Appellants address the similar rejection of all of the independent claims by pointing out the Examiner's failure to establish the proper suggestion or motivation to combine the operating system of the '462 patent with the dynamic client configuration functionality of the '463 patent.

Specifically, the Office Action alleges that the '462 patent discloses all of the elements of independent claims 1, 11, and 21 except for a system call trap that modifies the plurality of attributes for the software process based on an executable environment attribute stored in association with the executable file. The Office Action alleges that the '463 patent teaches "the modifying of attributes associated with a process (dynamic configuration of the client, p6 10-24) based on an executable environment attribute stored in association with the executable file (service entitlement from an access control database, Id.)." The Office Action further argues that it would have been obvious to combine the teachings of the '463 patent with the '462 patent because "the 'reconfiguration' of client attributes while maintaining the security would enable access to various protected applications through 'different or changing user entitlements' (Chen Abstract) at the same time as reducing user authentication-overhead while increasing flexibility for the user."

It is well-established law that, in order to properly combine select elements from differing prior art sources, there must be some teaching or suggestion *within the prior art* to make the combination specifically claimed by the Appellant's invention. *W. L.*

Gore & Associates, Inc. v. Garlock Thomas, Inc., 721 F.2d 1540, 1551 (Fed. Cir. 1983).

More significantly,

> "The consistent criteria for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this [invention] should be carried out and would have a reasonable likelihood of success, viewed in light of the prior art. ..." ***Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant's disclosure...*** In determining whether such a suggestion can fairly be gleaned from the prior art, the full field of the invention must be considered; for the person of ordinary skill in the art is charged with knowledge of the entire body of technological literature, including that which might lead away from the claimed invention."

(Emphasis added.) *In re Dow Chemical Company*, 837 F.2d 469, 473 (Fed. Cir. 1988).

It has often been noted that, "[h]umans must work with old elements, most if not all of which will normally be found somewhere in an examination of the prior art." *Connell v. Sears, Roebuck & Co.*, 722 F2d 1542, 1549, 220 U.S.P.Q. 193 (Fed. Cir. 1983). Furthermore, that features, even distinguishing features, are "disclosed" in the prior art is alone insufficient. It is common to find elements or features somewhere in the prior art. Moreover, most if not all elements perform their ordained and expected function. The test is whether the claimed invention as a whole, in light of all the teachings of the references in their entireties, would have been obvious to one of ordinary skill in the art at the time the invention was made. *Id.*

In this regard, Appellants note that there must not only be a suggestion to combine the functional or operational aspects of the combined references, but that the Federal Circuit also requires the prior art to suggest ***both*** the combination of elements ***and*** the structure resulting from the combination. *Stiftung v. Renishaw PLC*, 945 Fed.2d 1173 (Fed. Cir. 1991). Therefore, in order to sustain an obviousness rejection based

upon a combination of any two or more prior art references, the prior art must properly

suggest the desirability of combining the particular elements.

Appellants respectfully submit that the purported motivation or suggestion

provided by the Office Action is a classic example of impermissible hindsight reasoning

based solely on Appellants' disclosure. In this regard, Appellants note that the purported

motivation cited in the Office Action ("reducing user authentication-overhead while

increasing flexibility for the user") is NOT in the '463 patent. The Office Action alleges

that the suggestion or motivation to combine the references is in the Abstract of the '463

patent. Specifically, the Office Action points to the Abstract and the recitation of the

language "reconfiguration" and "different user entitlements" for the purported

motivation. Appellants note that this cited language is the ONLY language, which is

used to support the allegation of the motivation or suggestion to combine the references.

Appellants respectfully assert that this cited language is legally insufficient to

meet the Examiner's *prima facie* burden of establishing a proper motivation or

suggestion to combine the references. In this regard, Appellants respectfully assert that

the cited language -- "reconfiguration" and "different or changing user entitlements" --

does not suggest the desirability of combining the trusted operating system of the '462

patent with the user authentication process of the '463 patent. The objective of the '462

patent is to create a trusted computer server that controls access to the execution of

software processes called via the operating system. The '463 patent has nothing to do

with operating system functionality. Rather, the objective of the '463 patent is to

provide a method for authenticating a user (*i.e.*, client computer) attempting to gain

access to an application server 25 via a communications network 5. As mentioned

above, the '463 patent merely suggests a user authentication scheme which employs

public/private key cryptography for accessing the application servers. The '463 patent

suggests nothing about operating system functionality. At best, the '463 patent merely suggests the desirability of controlling user access to the application server via user entitlement database 30.

Appellants note that the '463 patent does not say anything about a system call trap associated with an operating system kernel, which is configured to modify the attributes of the software process. Rather, the language "different or changing user entitlements" in the Abstract of the '463 patent merely refers to the functionality of reconfiguring the client token, after the client computer 10 has registered, with different user entitlements for different software applications, different systems, and/or different locations, col. 6 ll. 1-20. In other words, the user entitlements may be reconfigured without the client computer 10 having to re-register. Thus, Appellants respectfully submit that this portion of the '463 patent cited by the Examiner does not suggest the desirability of modifying the trusted operating system of the '462 patent with the client reconfiguration functionality of the '463 patent. Accordingly, Appellants respectfully assert that the Office Action fails to establish a proper suggestion or motivation to combine the '462 patent and the '463 patent in the manner suggested. Appellants note that the improper combination of the '462 patent and the '463 patent is the basis for the rejection of all claims 1-40. Accordingly, Appellants respectfully submit that the rejection of claims 1-40 is improper and, therefore, the rejections must be overturned.

Discussion of Claim Group A

The proposed combination of the '462 and '463 patents *does not* render the subject matter of Appellants' claims 1-10 obvious under 35 U.S.C. §103. Furthermore, the proposed combination of the '462 and '463 patents, in further view of the '008 patent *does not* render the subject matter of Appellants' claims 31-33 obvious under 35 U.S.C. §103. The Examiner rejected claims 1-10 under 35 U.S.C. §103(a) over the '462 and '463 patents. The Examiner further rejected claims 31-33 under 35 U.S.C. §103(a) over the '462 and '463 patents in view of the '008 patent. (See Office Action, Paper No. 6, Page 2, Item 4 and Page 4, Item 5.)

In rejecting Appellants' claims 1-10, and 31-33, the Examiner alleges that the '462 patent discloses all of the elements of independent claim 1 except for a system call trap that modifies the plurality of attributes for the software process based on an executable environment attribute stored in association with the executable file. The Office Action alleges that the '463 patent teaches "the modifying of attributes associated with a process (dynamic configuration of the client, p6 10-24) based on an executable environment attribute stored in association with the executable file (service entitlement from an access control database, Id.)." Appellants disagree.

Even assuming for the sake of argument that there is some proper suggestion or motivation to modify or combine the '462 patent and the '463 patent as the Examiner suggests, the combination of these references fails to disclose, teach, or suggest each and every element of independent claim 1. For this additional reason, Appellants respectfully submit that the rejection of claims 1-10, and 31-33 is improper. MPEP §2143.03.

Independent claim 1 is directed to a system for establishing a secure execution environment for a software process executed by a program operating on a computer. Independent claim1 recites "a system call trap associated with said operating system kernel . . . configured to modify the plurality of attributes for the software process based on an executable environment attribute stored in association with said executable."

The Office Action admits that the '462 patent does not disclose this feature. Furthermore, contrary to the assertion in the Office Action, Appellants respectfully submit that this feature is NOT disclosed, taught, or suggested by the '463 patent. As mentioned above, the '463 patent relates to a process for authenticating users (*e.g.*, clients 10) that attempt to gain access to an application server 25 over a communications network 5. The '463 patent suggests nothing about a system call trap associated with an operating system functionality. Moreover, the '463 patent suggests nothing about modifying the attributes for a software process to be executed based on an executable environment attribute stored in association with an executable file to be accessed by the software process.

The Office Action alleges that this feature is taught in the Abstract of the '463 patent by the following description: "to provide for dynamic configuration of the client system to provide for different or changing user entitlements." Appellants respectfully submit that, at best, this description merely suggests the feature of changing the entitlements for a given user. In other words, the user entitlement database may suggest multiple levels of entitlements based on different systems, different locations, and/or different software applications to be accessed via applications server 25. Col. 6, ll. 1-20. The '463 patent, however, clearly does not suggest modifying the attributes for the software process to be executed based on an executable environment attribute stored in association with an executable file to be accessed by the software process.

Accordingly, and for at least this additional reason, Appellants respectfully submit that independent claim 1 is patentable over the '462 patent and the '463 patent and, therefore, the rejection must be overturned.

Dependent claims 2-10 (which depend from independent claim 1) are allowable as a matter of law for at least the reason that they contain all features and elements of the corresponding independent claim. See, *e.g., In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). Accordingly, Appellants respectfully assert that a *prima facie* case of obviousness has not been established and request that the rejection of claims 1-10 be overturned.

Moreover, Appellants respectfully submit that the '008 patent does not disclose, teach, or suggest modifying the attributes for a software process to be executed based on an executable environment attribute stored in association with an executable file to be accessed by the software process. Thus, the proposed combination of the '462, '463, and '008 patents fails to disclose, teach, or suggest all claim elements of dependent claims 31-33 (which depend from claim 1). Accordingly, Appellants respectfully assert that a *prima facie* case of obviousness has not been established and the rejection of claims 31-33 must be overturned.

Discussion of Claim Group B

The proposed combination of the '462 and '463 patents *does not* render the subject matter of Appellants' claims 11-20 obvious under 35 U.S.C. §103. Furthermore, the proposed combination of the '462 and '463 patents in further view of the '008 patent *does not* render the subject matter of Appellants' claims 34-37 obvious under 35 U.S.C. §103. The Examiner rejected claims 11-20 under 35 U.S.C. §103(a) over the '462 and '463 patents. The Examiner further rejected claims 34-37 under 35 U.S.C. §103(a) over

the '462 and '463 patents in view of the '008 patent. (See Office Action, Paper No. 6, Page 2, Item 4 and Page 4, Item 5.)

In rejecting Appellants' claims 11-20, and 33-37, the Examiner alleges that the '462 patent discloses all of the elements of independent claim 11 except for a system call trap that modifies the plurality of attributes for the software process based on an executable environment attribute stored in association with the executable file. The Office Action alleges that the '463 patent teaches "the modifying of attributes associated with a process (dynamic configuration of the client, p6 10-24) based on an executable environment attribute stored in association with the executable file (service entitlement from an access control database, Id.)." Appellants disagree.

Even assuming for the sake of argument that there is some proper suggestion or motivation to modify or combine the '462 patent and the '463 patent as the Examiner suggests, the combination of these references fails to disclose, teach, or suggest each and every element of independent claim 11. For this additional reason, Appellants respectfully submit that the rejection of claims 11-20, and 34-37 is improper. MPEP §2143.03.

Independent claim 11 is directed to a method for establishing a secure execution environment for a software process executed by a program operating on a computer. Independent claim 11 recites "modifying the plurality of attributes for the software process based on an executable environment attribute stored in association with the executable file."

The Office Action admits that the '462 patent does not disclose this feature. Furthermore, contrary to the assertion in the Office Action, Appellants respectfully submit that this feature is NOT disclosed, taught, or suggested by the '463 patent. As mentioned above, the '463 patent relates to a process for authenticating users that (*e.g.,*

clients 10) attempt to gain access to an application server 25 over a communications network 5. The '463 patent suggests nothing about a system call trap associated with an operating system functionality. Moreover, the '463 patent suggests nothing about modifying the attributes for a software process to be executed based on an executable environment attribute stored in association with an executable file to be accessed by the software process.

The Office Action alleges that this feature is taught in the Abstract of the '463 patent by the following description: "to provide for dynamic configuration of the client system to provide for different or changing user entitlements." Appellants respectfully submit that, at best, this description merely suggests the feature of changing the entitlements for a given user. In other words, the user entitlement database may suggest multiple levels of entitlements based on different systems, different locations, and/or different software applications to be accessed via applications server 25. Col. 6, ll. 1-20. The '463 patent, however, clearly does not suggest modifying the attributes for the software process to be executed based on an executable environment attribute stored in association with an executable file to be accessed by the software process. Accordingly, for at least this additional reason, the rejection of claim 11 must be overturned.

Dependent claims 12-20 (which depend from independent claim 11) are allowable as a matter of law for at least the reason that they contain all features and elements of the corresponding independent claim. See, *e.g.*, *In re Fine, supra.* Accordingly, Appellants respectfully assert that a *prima facie* case of obviousness has not been established and request that the rejection of claims 11-20 be overturned.

Moreover, Appellants respectfully submit that the '008 patent does not disclose, teach, or suggest modifying the attributes for a software process to be executed based on an executable environment attribute stored in association with an executable file to be

accessed by the software process. Thus, the proposed combination of the '462, '463, and '008 patents fails to disclose, teach, or suggest all claim elements of dependent claims 34-37 (which depend from claim 11). Accordingly, Appellants respectfully assert that a *prima facie* case of obviousness has not been established and the rejection of claims 34-37 must be overturned.

Discussion of Claim Group C

The proposed combination of the '462 and '463 patents *does not* render the subject matter of Appellants' claims 21-30 obvious under 35 U.S.C. §103. Furthermore, the proposed combination of the '462 and '463 patents, in further view of the '008 patent *does not* render the subject matter of Appellants' claims 38-40 obvious under 35 U.S.C. §103. The Examiner rejected claims 21-30 under 35 U.S.C. §103(a) over the '462 and '463 patents. The Examiner further rejected claims 38-40 under 35 U.S.C. §103(a) over the '462 and '463 patents in view of the '008 patent. (See Office Action, Paper No. 6, Page 2, Item 4 and Page 4, Item 5.)

In rejecting Appellants' claims 21 – 30, and 38-40, the Examiner alleges that the '462 patent discloses all of the elements of independent claim 21 except for a system call trap that modifies the plurality of attributes for the software process based on an executable environment attribute stored in association with the executable file. The Office Action alleges that the '463 patent teaches "the modifying of attributes associated with a process (dynamic configuration of the client, p6 10-24) based on an executable environment attribute stored in association with the executable file (service entitlement from an access control database, Id.)." Appellants disagree.

Even assuming for the sake of argument that there is some proper suggestion or motivation to modify or combine the '462 patent and the '463 patent as the Examiner

suggests, the combination of these references fails to disclose, teach, or suggest each and every element of independent claim 21. For this additional reason, Appellants respectfully submit that the rejection of claims 21-30, and 38-40 is improper. MPEP §2143.03.

Independent claim 21 is directed to a computer-readable medium having a program for establishing a secure execution environment for a software process executed by a program operating on a computer. Independent claim 21 recites "logic for modifying the plurality of attributes for the software process based on an executable environment attribute stored in association with the executable file."

The Office Action admits that the '462 patent does not disclose this feature. Furthermore, contrary to the assertion in the Office Action, Appellants respectfully submit that this feature is NOT disclosed, taught, or suggested by the '463 patent. As mentioned above, the '463 patent relates to a process for authenticating users that (*e.g.*, clients 10) attempt to gain access to an application server 25 over a communications network 5. The '463 patent suggests nothing about a system call trap associated with an operating system functionality. Moreover, the '463 patent suggests nothing about modifying the attributes for a software process to be executed based on an executable environment attribute stored in association with an executable file to be accessed by the software process.

The Office Action alleges that this feature is taught in the Abstract of the '463 patent by the following description: "to provide for dynamic configuration of the client system to provide for different or changing user entitlements." Appellants respectfully submit that, at best, this description merely suggests the feature of changing the entitlements for a given user. In other words, the user entitlement database may suggest multiple levels of entitlements based on different systems, different locations, and/or

different software applications to be accessed via applications server 25. Col. 6, ll. 1-20. The '463 patent, however, clearly does not suggest modifying the attributes for the software process to be executed based on an executable environment attribute stored in association with an executable file to be accessed by the software process.

Consequently, the statement of the rejection fails to establish a proper *prima facie* case for obviousness of Appellant's claim 21. Accordingly, for at least this additional reason, the rejection must be overturned.

Dependent claims 22-30 (which depend from independent claim 21) are allowable as a matter of law for at least the reason that they contain all features and elements of the corresponding independent claim. See, *e.g.*, *In re Fine, supra*. Accordingly, Appellants respectfully assert that a *prima facie* case of obviousness has not been established and request that the rejection of claims 21-30 be overturned.
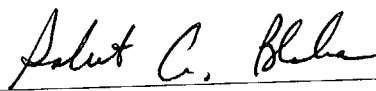
Moreover, Appellants respectfully submit that the '008 patent does not disclose, teach, or suggest modifying the attributes for a software process to be executed based on an executable environment attribute stored in association with an executable file to be accessed by the software process. Thus, the proposed combination of the '462, '463, and '008 patents fails to disclose, teach, or suggest all claim elements of dependent claims 38-40 (which depend from claim 21). Accordingly, Appellants respectfully assert that a *prima facie* case of obviousness has not been established and the rejection of claims 38-40 must be overturned.

IX. CONCLUSION

Appellants respectfully request that the Board of Appeals overturn the Examiner's rejection of all pending claims 1-40 and allow these claims for the reasons indicated.

Respectfully submitted,

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X. APPENDIX

Claims

1   1.   A system for establishing a secure execution environment for a software

2 process executed by a program operating on a computer, comprising:

3   a software process operating on a computer, said software process including a

4 plurality of attributes;

5   an operating system kernel in communication with said software process and in

6 communication with an executable file to be accessed by said software process; and

7   a system call trap associated with said operating system kernel, said system call

8 trap configured to modify the plurality of attributes for the software process based on an

9 executable environment attribute stored in association with said executable file.

1   2.   The system of claim 1, wherein said system call trap further comprises:

2   a process attribute extension; and

3   an access token extension associated with said process attribute extension, said

4 access token extension including said executable environment attribute.

1   3.   The system of claim 1, wherein said executable environment attribute is

2 contained in a database associated with said executable file.

1   4.   The system of claim 1, wherein said executable environment attribute is

2 chosen from the group consisting of user ID, group IDs and privileges.

1   5.   The system of claim 1, wherein said execution environment isolates said

2   software process from any other software process operating on said computer.

1   6.   The system of claim 1, wherein said software process is a web server

2   process.

1   7.   The system of claim 1, wherein said software process is a file transfer

2   process.

1   8.   The system of claim 1, wherein said software process is a mail server

2   process.

1   9.   The system of claim1, wherein said executable environment attribute is

2   associated to said software process upon execution of said software process.

1   10.   The system of claim 1, wherein said executable environment attribute

2   replaces any existing attributes associated with said software process.

1   11.   A method for establishing a secure execution environment for a software

2   process executed by a program operating on a computer, the method comprising:

3   operating a software process on a computer, said software process including a

4   plurality of attributes;

5   executing an operating system kernel in communication with said software

6   process, said operating system kernel in communication with an executable file to be

7   accessed by said software process; and

8   modifying the plurality of attributes for the software process based on an

9   executable environment attribute stored in association with the executable file.

1   12.   The method of claim 11, further comprising:

2   executing a process attribute extension; and

3   executing an access token extension associated with said process attribute

4   extension, said access token extension including the executable environment attribute.

1   13.   The method of claim 11, wherein the executable environment attribute is

2   contained in a database associated with said executable file.

1   14.   The method of claim 11, wherein said the executable environment

2   attribute is chosen from the group consisting of user ID, group IDs and privileges.

1   15.   The method of claim 11, wherein said execution environment isolates

2   said software process from any other software process operating on said computer.

1   16.   The method of claim 11, wherein said software process is a web server

2   process.

1   17.   The method of claim 11, wherein said software process is a file transfer

2   process.

1   18.   The method of claim 11, wherein said software process is a mail server

2   process.

1   19.   The method of claim 11, wherein the executable environment attribute is

2   associated to said software process upon execution of said software process.

1   20.   The method of claim 11, wherein the executable environment attribute

2   replaces any existing attributes associated with said software process.

1   21.   A computer readable medium having a program for establishing a secure

2   execution environment for a software process executed by a program operating on a

3   computer, the program including logic for:

4   operating a software process on a computer, said software process including a

5   plurality of attributes;

6   executing an operating system kernel in communication with said software

7   process, said operating system kernel in communication with an executable file to be

8   accessed by said software process; and

9   modifying the plurality of attributes for the software process based on an

10   executable environment attribute stored in association with the executable file.

1   22.   The program of claim 21, further comprising logic for:

2   executing a process attribute extension; and

3   executing an access token extension associated with said process attribute

4   extension, said access token extension including the executable environment attribute.

1   23.   The program of claim 21, wherein the executable environment attribute

2   is contained in a database associated with said executable file.

1   24.   The program of claim 21, wherein said the executable environment

2   attribute is chosen from the group consisting of user ID, group IDs and privileges.

1   25.   The program of claim 21, wherein said execution environment isolates

2   said software process from any other software process operating on said computer.

1   26.   The program of claim 21, wherein said software process is a web server

2   process.

1   27.   The program of claim 21, wherein said software process is a file transfer

2   process.

1   28.   The program of claim 21, wherein said software process is a mail server

2   process.

1   29.   The program of claim 21, wherein said the executable environment

2   attribute is associated to said software process upon execution of said software process.

1   30.   The program of claim 21, wherein the executable environment attribute

2   replaces any existing attributes associated with said software process.

1   31.   The system of claim 1, wherein the system call trap is further configured

2   to determine whether the execution environment attribute contains an inherit flag.

1   32.   The system of claim 31, wherein the system call trap is further

2   configured to store a current attribute for a current process when the execution

3   environment attribute contains an inherit flag.

1   33.   The system of claim 32, wherein the system call trap is further

2   configured to:

3   determine whether the current attribute for the current process contains the

4   inherit flag;

5   merge the execution environment attribute with a previously stored attribute if

6   the current attribute does not contain the inherit flag; and

7   merge the execution environment attribute with the current attribute if the

8   current attribute does contain the inherit flag.

1   34.   The method of claim 11, further comprising determining whether the

2   execution environment attribute contains an inherit flag.

1   35.   The method of claim 34, further comprising storing a current attribute for

2   a current process when the execution attribute contains an inherit flag.

1   36.   The method of claim 35, further comprising:

2   determining whether the current attribute for the current process contains the

3   inherit flag; and

4   merging the execution environment attribute with a previously stored attribute if

5   the current attribute does not contain the inherit flag.

1   37.   The method of claim 35, further comprising:

2   determining whether the current attribute for the current process contains the

3 inherit flag; and

4   merging the execution environment attribute with the current attribute if the

5 current attribute does contain the inherit flag.

1   38.   The computer readable medium of claim 21, further comprising logic for

2 determining whether the execution environment attribute contains an inherit flag.

1   39.   The computer readable medium of claim 38, further comprising logic for

2 storing a current attribute for a current process when the execution attribute contains an

3 inherit flag.

1   40.   The computer readable medium of claim 39, further comprising logic

2 for:

3   determining whether the current attribute for the current process contains the

4 inherit flag;

5   merging the execution environment attribute with a previously stored attribute if

6 the current attribute does not contain the inherit flag; and

7   merging the execution environment attribute with the current attribute if the

8 current attribute does contain the inherit flag.